* **Algebra:** The branch of mathematics that deals with relationships between numbers, utilizing letters and other symbols to represent specific sets of numbers, or to describe a pattern of relationships between numbers.
* **Coefficient:** A number multiplied by a variable.
* **Equation:** A number sentence that contains an equals symbol.
* **Expression:** A mathematical phrase involving at least one variable and sometimes numbers and operation symbols.
* **Inequality**: Any mathematical sentence that contains the symbols > (greater than), < (less than), < (less than or equal to), or > (greater than or equal to).
* **Ordered Pair**:  A pair of numbers, (x, y), that indicate the position of a point on a Cartesian plane.
* **Substitution:** To replace one element of a mathematical equation or expression with another.
* **Variable:** A letter or symbol used to represent a number.

**The Properties of Operations**

Here *a*, *b* and *c* stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.

|  |  |
| --- | --- |
| *Associative property of addition* | (*a + b*) *+ c = a +* (*b + c*) |
| *Commutative property of addition* | *a + b = b + a* |
| *Additive identity property of 0* | *a +* 0 *=* 0 + *a* = *a* |
| *Existence of additive inverses* | For every *a* there exists –*a* so that *a* + (–*a*) = (–*a*) + *a* = 0. |
| *Associative property of multiplication* | (*a* × *b*) × *c = a* × (*b* × *c*) |
| *Commutative property of multiplication* | *a* × *b = b* × *a* |
| *Multiplicative identity property of 1* | *a* × 1 *=* 1 × *a* = *a* |
| *Existence of multiplicative inverses* | For every *a* ≠ 0 there exists 1/*a* so that *a* × 1/*a* = 1/*a* × *a* = 1. |
| *Distributive property of multiplication over addition* | *a* × (*b* + *c*) *= a* × *b* + *a* × *c* |

Vocabulary

**The Properties of Equality**

Here *a*, *b* and *c* stand for arbitrary numbers in the rational, real, or complex number systems.

|  |  |
| --- | --- |
| *Reflexive property of equality* | *a* = *a* |
| *Symmetric property of equality* | If *a = b*, then *b = a.* |
| *Transitive property of equality* | If *a = b* and *b = c*, then *a = c.* |
| *Addition property of equality* | If *a = b*, then *a + c = b + c.* |
| *Subtraction property of equality* | If *a = b*, then *a* – *c* = *b* – *c.* |
| *Multiplication property of equality* | If *a = b*, then *a* × *c* = *b* × *c.* |
| *Division property of equality* | If *a = b* and *c* ≠ 0, then *a* ÷ *c* = *b* ÷ *c.* |
| *Substitution property of equality* | If *a* = *b*, then *b* may be substituted for *a* in any expression containing *a*. |

Vocabulary Activity-

Use Microsoft Office Powerpoint to create a visual demonstration on the above vocabulary.

Resources:

<http://www.amathsdictionaryforkids.com/>

This web site has activities to help students more fully understand and retain new vocabulary.

<http://intermath.coe.uga.edu/dictnary/homepg.asp>

Definitions and activities for these and other terms can be found on the Intermath website. Intermath is geared towards middle and high school students.

You should include all of the above vocabulary. Be sure to make your powerpoint interactive. You might feel the urge to work with two others. This will mean you would perform at a higher level of exceptionality. Please create a rubric by which you feel you should be graded and have me sign off on it. Complete your presentation and have it ready for tomorrow’s class.